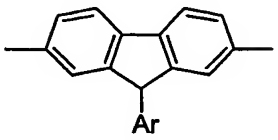
Claims

1) A polymer comprising optionally substituted first repeat units of formula (I):



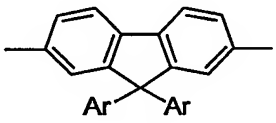
(I)

wherein Ar is selected from:

(a) aromatic hydrocarbon substituted with at least one electron withdrawing group or

(b) electron withdrawing heteroaryl.

2) A polymer according to claim 1 comprising repeat units of formula (II):



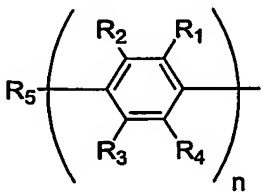
(II)

wherein each Ar is independently selected from:

(c) aromatic hydrocarbon substituted with at least one electron withdrawing group or

(d) electron withdrawing heteroaryl.

3) A polymer according to claim 1 or 2 wherein each Ar is independently selected from units of formula (III):



(III)

wherein n is from 1-3 and R_1-R_5 are independently selected from:

- hydrogen;
- solubilising groups selected from alkyl, alkoxy, arylalkyl and heteroarylalkyl; and
- electron withdrawing groups

such that at least one of R_1-R_5 is an electron withdrawing group.

4) A polymer according to any preceding claim wherein Ar is phenyl or oligophenyl substituted with at least one electron withdrawing group and the at least one electron withdrawing group is selected from: groups comprising fluorine, cyano and nitro.

5) A polymer according to claim 4 wherein the at least one electron withdrawing group is selected from fluorine atoms, fluoroalkyl, fluoroaryl and fluoroheteroaryl.

6) A polymer according to claim 1 or 2 wherein Ar is an electron withdrawing heteroaryl selected from optionally substituted pyridines and triazines.

7) A polymer according to any preceding claim comprising a second repeat unit.

8) A polymer according to claim 7 wherein the second repeat unit is selected from triarylamines and heteroaromatics.

9) A polymer according to any preceding claim that is capable of transporting electrons.

10) A polymer according to claim 9 that comprises at least one segment capable of hole transport and / or emission.

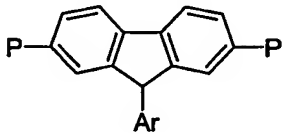
11) An optical device comprising a polymer according to any one of claims 1 to 10.

12) An optical device according to claim 11 that is an electroluminescent device.

13) An electroluminescent device comprising:

- a first electrode for injecting charge carriers of a first type;
- a second electrode for injecting charge carriers of a second type; and
- an emissive layer comprising a polymer according to any one of claims 1-8 between the first and second electrodes.

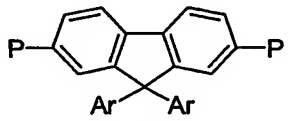
14) A monomer comprising an optionally substituted compound of formula (IV):



(IV)

wherein each P independently represents a polymerisable group and Ar is as defined in any one of claims 1-6.

15) A monomer according to claim 14 comprising an optionally substituted compound of formula (V):



(V)

wherein each P independently represents a polymerisable group.

16) A monomer according to claim 14 or 15 wherein each P is independently selected from a reactive boron derivative group selected from a boronic acid group, a boronic ester group and a borane group and a reactive halide group.

17) A process for preparing a polymer comprising a step of reacting a first monomer as defined in any one of claims 14-16 with a second monomer that may be the same or different from the first monomer under conditions so as to polymerise the monomers.

18) A process for preparing a polymer according to claim 17 which comprises polymerising in a reaction mixture:

(a) a monomer according to claim 16 wherein each P is a boron derivative functional group selected from a boronic acid group, a boronic ester group and a borane group, and an aromatic monomer having at least two reactive halide functional groups; or

(b) a monomer according to claim 16 wherein each P is a reactive halide functional group, and an aromatic monomer having at least two boron derivative functional groups selected from boronic acid groups, boronic ester groups and borane groups; or

(c) a monomer according to claim 16 wherein one P is a reactive halide functional group and one P is a boron derivative functional group selected from a boronic acid group, a boronic ester group and a borane group,

wherein the reaction mixture comprises a catalytic amount of a catalyst suitable for catalysing the polymerisation of the aromatic monomers, and a base in an amount sufficient to convert the boron derivative functional groups into boronate anionic groups.